

N<sup>o</sup> 19,559



A.D. 1899

*Date of Application, 29th Sept., 1899*

*Complete Specification Left, 30th July, 1900—Accepted, 8th Sept., 1900*

PROVISIONAL SPECIFICATION.

**Improvements in and in Apparatus for the Drawing of Cycle Spokes and the like.**

I, MORRIS CARSWELL, Junior, 1, Alfred Terrace, Great Western Road, Hillhead, Glasgow, Merchant and Manufacturer, do hereby declare the nature of this invention to be as follows:—

This invention relates to wire drawing machines more particularly intended for use in the manufacture of the spokes of cycle wheels, its object being to enable one end of the spoke to be butted, the butt on the other end being already formed by being ground or turned, or by any other suitable means, while the intermediate portion is formed either taper or parallel as desired.

The machine comprises a fixed head carrying the dies, and mounted upon a suitable base, and a carriage which can be caused by means of a crank attached to a large wheel or disc to move away from the fixed head, and on the return stroke of the crank to move back ready for a fresh draw. The carriage has mounted upon it suitably shaped nippers or the like by means of which the end of the wire to be drawn is firmly held. It has also a rod, working in a fixed bed, and operated by a cam fixed on the same spindle to which the large wheel is keyed. On the other end of the rod, next the head, is pivotted a lever by means of which motion is imparted to a die in a manner hereinafter to be described.

The fixed head is provided with two grooves in each of which lies a block or die-box, one being fixed and the other movable, each of which carries a die. The position of the dies in their respective sliding blocks may be adjusted by means of set screws. The lever is formed with a cam shaped piece at one end which bears against a similar cam shaped piece on the outer end of the movable die-box. This lever thus causes the movable die to close on the fixed die and practically forms a wire draw plate.

The return motion of the rod to which the lever is fixed is given by a conveniently arranged spring. When the pressure on the lever is released the die-box is then opened by a conveniently arranged spring.

The machine is driven by suitable gear wheels.

Dated this 28th day of September 1899.

MORRIS CARSWELL, JUN.

COMPLETE SPECIFICATION.

**Improvements in and in Apparatus for the Drawing of Cycle Spokes and the like.**

I, MORRIS CARSWELL, Junior, 1, Alfred Terrace, Great Western Road, Hillhead, Glasgow, Merchant & Manufacturer, do hereby declare the nature of this inven-

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*Improvements in and in Apparatus for the Drawing of Cycle Spokes and the like.*

tion and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in and in apparatus for the drawing of cycle spokes and the like. its object being to enable one end of the spoke to be butted during the process of drawing, the butt on the other end has been previously formed by the wire being, ground or turned at the required point for the purpose while the intermediate portion is formed either taper or parallel as desired. By this means I am enabled to draw the wire of the spoke thus obtaining a perfectly true round section and producing spokes much more quickly and consequently more economically than hitherto.

In order that any invention may be clearly understood and more easily carried into practise, I have appended hereunto a sheet of drawings upon which I have fully illustrated the nature of any said improvements together with one form of machine for carrying the same into effect and in which it will be readily understood many modifications in the mode of actuating the tools can be made.

Figure 1 is a view of a spoke wire after having been turned or ground to form the butt at one end.

Figure 2 is a similar view to Figure 1 but shewing the wire inserted between divided dies prior to being drawn.

Figure 3 is a section through the wires shewing the divided dies in elevation.

Figure 4 is another view of the wire after being drawn sufficiently far to form the butt at the other end.

Figure 5 is a view of the double butted spoke after leaving the machine.

Figure 6 is a side elevation of one form of machine suitable for drawing such spokes.

Figure 7 is a plan of the divided draw dies shewn in same.

In carrying my invention into effect the wire for the spoke, A, is first prepared by being ground or turned down to the required size of the spoke at  $a^1$  thus forming the butt  $a^2$  after which the part  $a^1$  is inserted between the divided dies B B<sup>1</sup> which are closed upon it the end of the wire is then gripped by suitable shaped nippers C and drawn through the divided plate or dies B B<sup>1</sup> the intermediate part of the wire being thus reduced in diameter for a regulated distance from the reverse end to leave the length of butt required at that end after which the dies or plates are opened and the spoke removed from the nippers in its complete double butted form as shewn by Figure 5 with the intermediate portion  $a^3$  reduced in diameter as required.

I do not confine myself to any particular mode of drawing the wire through the plates but have illustrated the following means for carrying the same into effect i.e. an ordinary lath bed P upon which a fixed head E is mounted together with a carriage F which can be caused by means of a crank attached to a large wheel or disc or by a spur H and rack K operated by a hand wheel M to move to and from the fixed head. The carriage F has mounted upon it suitably shaped nippers C or the like by means of which the wire A to be drawn, is firmly held and afterwards released by the hand lever T while the travel of the carriage is regulated by the adjustable stop V. The fixed head E is provided with a slide N in which are mounted the two parts B and B<sup>1</sup> of the divided plate or die the one part B<sup>1</sup> being fixed and the other B<sup>1</sup> movable while the exact position of the divided dies may be adjusted by suitable set screws.

I may actuate the moving die from the carriage by means of a rod connected thereto and pivotted to a lever having a cam shaped piece at one end bearing against a similar cam shaped piece on the outer end of a movable die box the action of which would close the divided dies with a spring for opening same again when released by cam but I prefer operating the moving part of the die independently of the carriage by the worm screw R and hand wheel S. Studs U are provided on a face of one of the half dies and enter into recesses in the other half to retain the two halves true together.

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*Improvements in and in Apparatus for the Drawing of Cycle Spokes and the like.*

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

The manufacture of and apparatus for drawing double butted cycle spokes and the like characterized by first reducing a portion of the diameter of the wire and drawing it a regulated distance through a divided die or draw-plate so as reduce the intermediate part of the wire and leave each end butted.

Dated this 28th day of July 1900.

LEWIS WM. GOOLD,  
Agent for Applicant,  
5 Corporation Street, Birmingham.

Redhill: Printed for Her Majesty's Stationery Office, by Malcomson & Co., Ltd.—1900.

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FIG. 6.

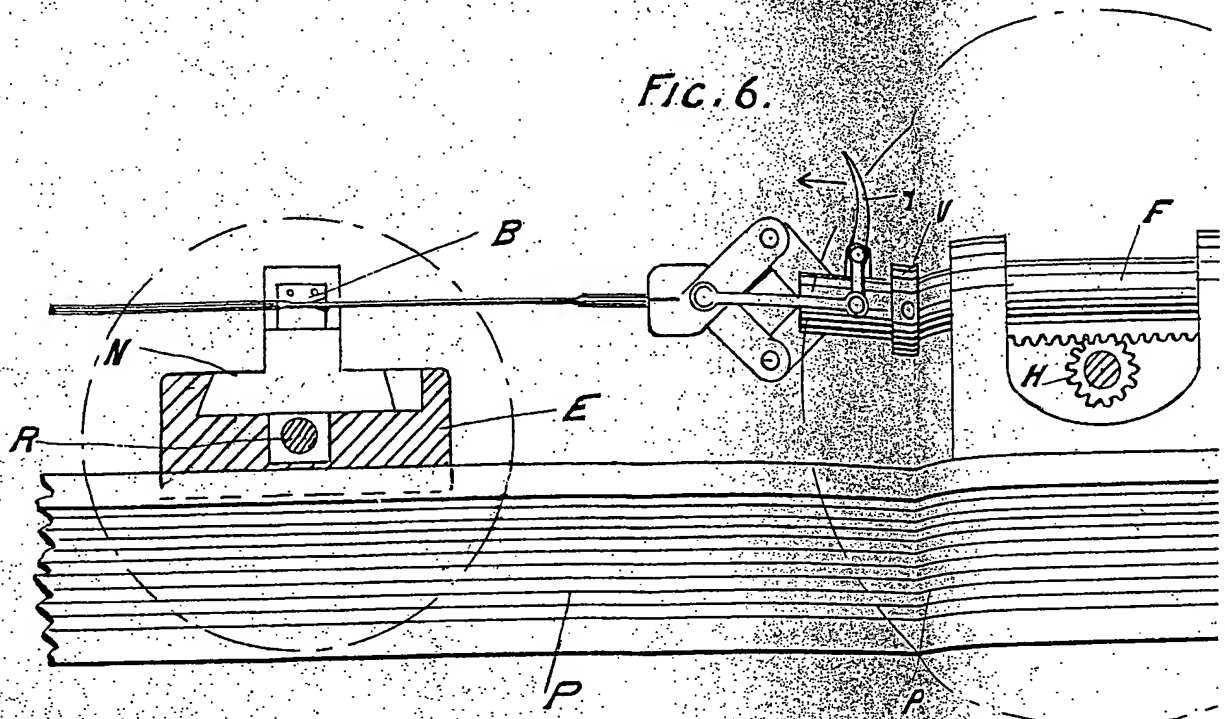


FIG. 7.

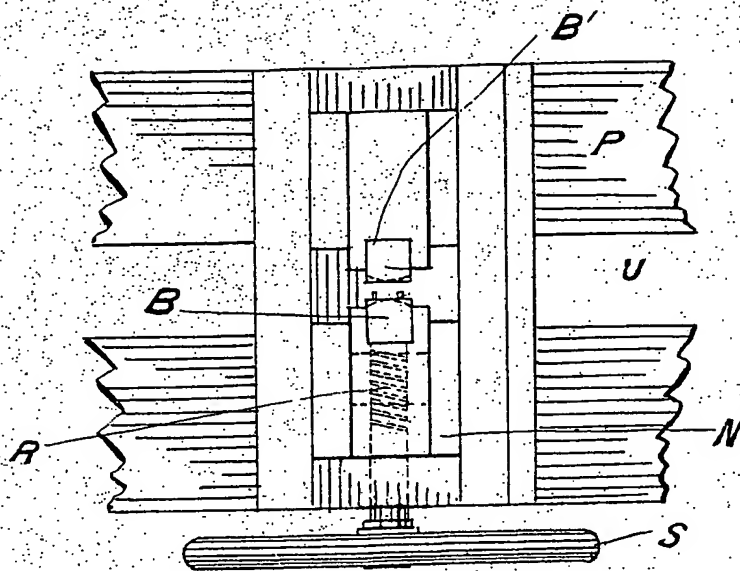
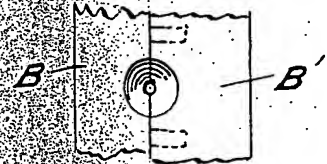


FIG. 5.



FIG. 3.



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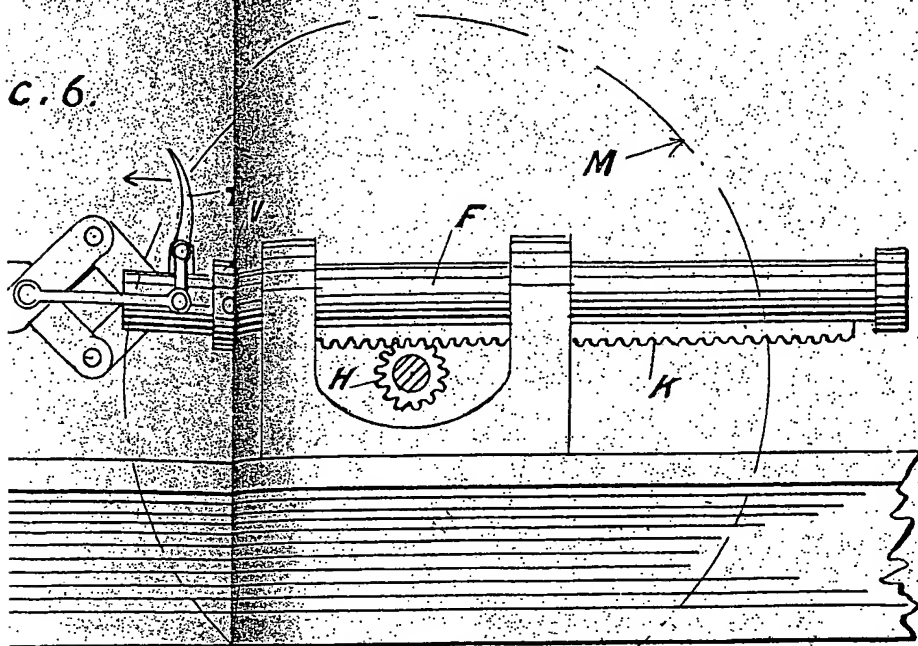


FIG. 1

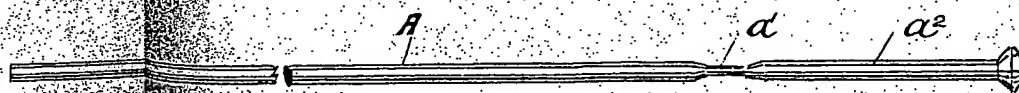


FIG. 2

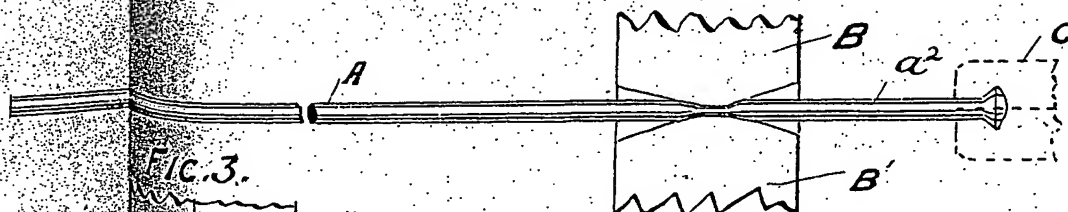


FIG. 3.

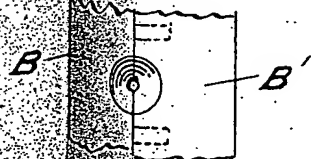


FIG. 4.



[This Drawing is a reproduction of the Original on a reduced scale]